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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/865,146	05/24/2001	Shin Abe	P/1071-1348	2825

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EXAMINER
HAM, SEUNGSOOK

ART UNIT	PAPER NUMBER
2817	

DATE MAILED: 05/07/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/865,146	ABE ET AL.	
	Examiner	Art Unit	
	Seungsook Ham	2817	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 March 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *3,4,6-8,10-12 and 21* is/are pending in the application.

4a) Of the above claim(s) *4* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *3, 6-8, 10-12 and 21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the subject matter of claim 21 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 3, 6-8, 10-12 and 21 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

In claim 3, lines 9-10, "and the other conductor layers of the inner conductor are substantially equal in thickness" (see also claim 8, lines 7-8, and lines 14-15, claim 10, lines 11-12, claim 11, lines 15-16, claim 12, lines 9-10), and lines 14-15, "and the other conductor layers of the outer conductor are substantially equal in thickness" (see also claim 8, lines 15-16, claim 10, lines 19-20, claim 11, lines 23-24, claim 12, lines 7-18)

are not described in the specification. Moreover, claim 21, lines 7-9 and lines 11-13, "wherein the conductor layers of the inner conductor gradually decrease in thickness from an inner most conductor layer toward an outermost conductor layer", and "wherein the conductor layers of the inner conductor gradually increase in thickness from an inner most conductor layer toward an outermost conductor layer" are not described in the specification or shown on the drawings. Thus, these limitations are considered as new subject matter.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 3, 6, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lithgow (US '883) or Isoda (JP '501) in view of Ishikawa et al. (JP '804).

Lithgow (figs. 1-8) discloses a coaxial resonator comprising: an inner conductor 14 formed on an outer surface of a columnar element 12, a dielectric element 18 having a hole formed therein, the columnar element being disposed in the hole, and an outer conductor 24 formed on an outer surface of the dielectric element (see abstract).

Isoda (figs. 1(a) , 1(b)) discloses a coaxial resonator comprising: an inner conductor 11 formed on an outer surface of a columnar element 12, a dielectric element 10 having a hole formed therein, the columnar element being disposed in the hole, and

an outer conductor 13 formed on an outer surface of the dielectric element (see abstract).

Lithgow and Isoda do not show the inner conductor and outer conductor formed by alternately laminating conductor layers and dielectric layers; an outermost conductor layer has a greater thickness than the other conductor layers in inner conductor and outer conductor; and other conductive layers of the inner conductor and outer conductor are substantially equal in thickness.

Ishikawa et al. (fig. 33 (c)) discloses a coaxial resonator having inner and outer conductors 71, 72 and a dielectric element disposed therebetween, wherein the inner conductor and outer conductor 71, 72 has a multi-layer electrode structure in which conductor layers 1-5 and dielectric layers 30-1, 30-2, 30-3, 30-4 are alternatively laminated and wherein an outermost conductor layer 1 of the inner conductor (or outer conductor) is greater in thickness than the other conductor layers 2-5 of the inner conductor (or outer conductor). Moreover, Ishikawa et al. teaches that the film thickness of the conductive layers are set up such that phase velocity each TEM wave spreading through adjacent transmission lines become in phase (see abstract).

It would have been obvious to one of ordinary skill in the art to provide the multi-layered electrode structure of inner conductor and outer conductor of Ishikawa et al. in the device of Lithgow or Isoda to reduce conduction loss in a transmission line as taught by Ishikawa et al. (see WEST abstract). Moreover, providing the other conductor layers of the inner and outer conductors having substantially equal thickness would have been obvious in the modified device of Lithgow or Isoda since Ishikawa et al. teaches the film

thickness (i.e., conductive layers 1-5) can be set up to have same phase constants of the conductive layers are equal as suggested by Ishikawa et al. (see abstract).

Regarding claim 6, it is inherent from the device of Ishikawa since it discloses the film thickness of conductor layers are in phase (see WEST abstract).

Regarding claim 21, Ishikawa et al. (fig. 33c) also shows the thickness of the conductive layers of inner conductor and outer conductor are gradually increased (from the innermost layer 5 to outermost layer 1) or decreased (from the outermost layer 1 to the innermost layer 5). Therefore, it would have been obvious to one of ordinary skill in the art to provide the multi-layered electrode structure of inner conductor and outer conductor of Ishikawa et al. in the device of Lithgow or Isoda to reduce conduction loss in a transmission line as taught by Ishikawa et al. (see WEST abstract).

Claims 3 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lithgow (US '883) or Isoda (JP '501) in view of Hidaka et al. (US '091).

Lithgow (figs. 1-8) and Isoda (figs. 1(a) , 1(b)) are applied as above.

Lithgow and Isoda do not show the inner conductor and outer conductor formed by alternately laminating conductor layers and dielectric layers; an outermost conductor layer has a greater thickness than the other conductor layers in inner conductor and outer conductor; and other conductive layers of the inner conductor and outer conductor are substantially equal in thickness.

Hidaka et al. (fig. 2) discloses a similar dielectric resonator having a conductor 2 has a multi-layer electrode structure in which conductor layers 3a-3d and dielectric layers 4a-4d are alternatively laminated and wherein an outermost conductor layer 3d is

greater in thickness than the other conductor layers, and also the thickness of the other layers 3c-3a are substantially equal.

It would have been obvious to one of ordinary skill in the art to use the multi-layered conductive structure of Hidaka et al. in the device of Lithgow or Isoda as the inner and outer conductors to reduce conduction losses as taught by Hidaka et al. (see abstract).

Claims 8 and 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lithgow (US '883) or Isoda (JP '501) in view of Ishikawa et al. (JP '804) or Hidaka et al. (US '091) as applied to claim 3 above, and further in view of Tada et al. (US '707).

The modified device of Lithgow or Isoda does not show providing the coaxial resonator in a duplexer by providing a plurality of coaxial resonators. However, using a plurality of coaxial resonators in a duplexer is well known in the art.

Tada et al. (figs. 1-6) discloses a conventional duplexer having a transmission filter and a reception filter disposed in a dielectric block having a plurality of coaxial resonators.

It would have been obvious to one of ordinary skill in the art to use the modified coaxial resonator of Lithgow or Isoda in a duplexer since such design technique is well known in the art as shown by Toda et al. and it also requires only a routine skill in the art.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lithgow (US '883) or Isoda (JP '501) in view of Ishikawa et al. (JP '804) or Hidaka et al. (US '091) as applied to claim 3 above, and further in view of Fukazawa (JP '448).

The modified device of Lithgow or Isoda is silent as to whether a non-conducting element can be disposed between the columnar element and the dielectric element. However, such coaxial resonator structure is well known in the art. Fukazawa (figs. 1, 2 and 5) discloses a coaxial resonator having a non-conducting element 9 (i.e., a gap) disposed between a columnar element (i.e., a rod) and a dielectric element 2. Therefore, it would have been obvious to one of ordinary skill in the art to provide a non-conducting element between the columnar element and the dielectric element in the modified device of Lithgow or Isoda since such design technique is well known in the art and does not alter the resonator characteristic.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington,* 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 3, 6-8, 10-12 and 21 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-12 of copending Application No. 09/707,264 in view of Lithgow (US '883) or Isoda (JP '501).

The instant claims are same except the inner conductor is disposed on a columnar element. Lithgow and Isoda disclose a coaxial resonator having an inner conductor provided on an outer surface of a columnar element and disposed in a dielectric element hole. It would have been obvious to one of ordinary skill in the art to provide the inner conductor on a columnar element and disposed in a dielectric element hole in the device of copending claims for easy assembling as taught by Lithgow or Isoda (see abstract).

This is a provisional obviousness-type double patenting rejection.

Claims 3, 6-8, 10-12 and 21 are provisionally rejected under 35 U.S.C. 103(a) as being obvious over copending Application No. 09/707,264 which has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the copending application, it would constitute prior art under 35 U.S.C. 102(e) if published or patented. This provisional rejection under 35 U.S.C. 103(a) is based upon a presumption of future publication or patenting of the conflicting application.

The same reasoning is applied as the obviousness-type doubling patenting rejection above.

This provisional rejection might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the copending application was derived from the inventor of this application and is thus not the invention "by another," or by a showing of a date of invention for the instant application prior to the effective U.S. filing date of the copending application under 37 CFR 1.131. For applications filed on or after November 29, 1999, this rejection might also be overcome by showing that the

subject matter of the reference and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person. See MPEP § 706.02(l)(1) and § 706.02(l)(2).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Seungsook Ham whose telephone number is (703) 308-4090. The examiner can normally be reached on Monday - Thursday from 8:00 A.M. to 5:00 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert J. Pascal can be reached on (703)308-4909. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0956.

Seungsook Ham
Primary Examiner
Art Unit 2817

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April 23, 2003